Graphics Verification
Oct 03 Results

Measures Used

2 x 2 Contingency Table

Observations \ Forecasts			
	A	B	C = A +B
	D	E	F = D + E
	G = A + D	H = B + E	I = C + F

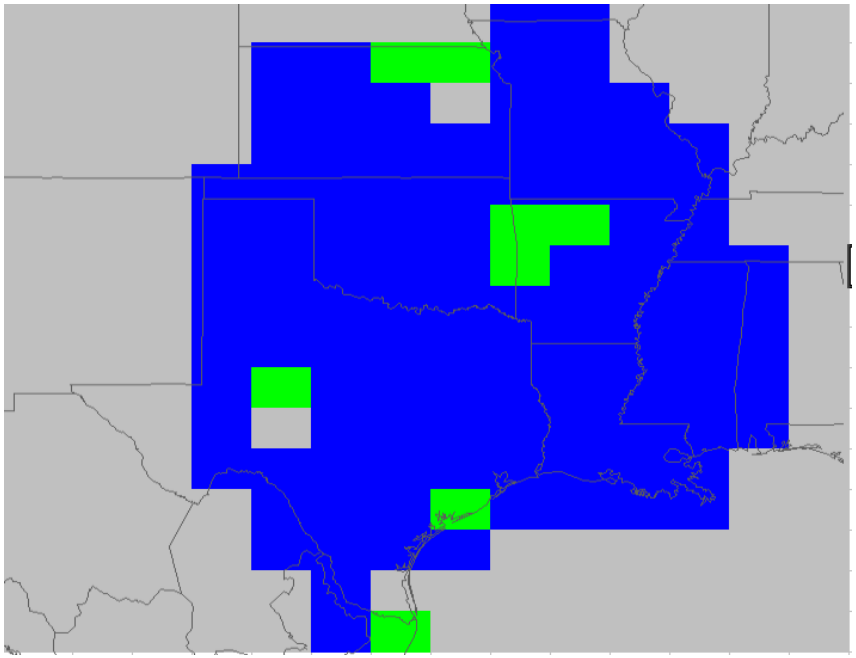
- **Chi-Square** – used to test for statistical significance. Answers the question, “Do we have a large enough sample to know our results are conclusive?”.
- **Heidke Skill Score** – used to test whether we are beating persistence or climatology.
- **Bias** – used to determine whether we are over-forecasting or under-forecasting.

HWD Results

Period: 01-31 Oct 03

HWD 12 Hr Forecast

HEIDKE SKILL SCORE



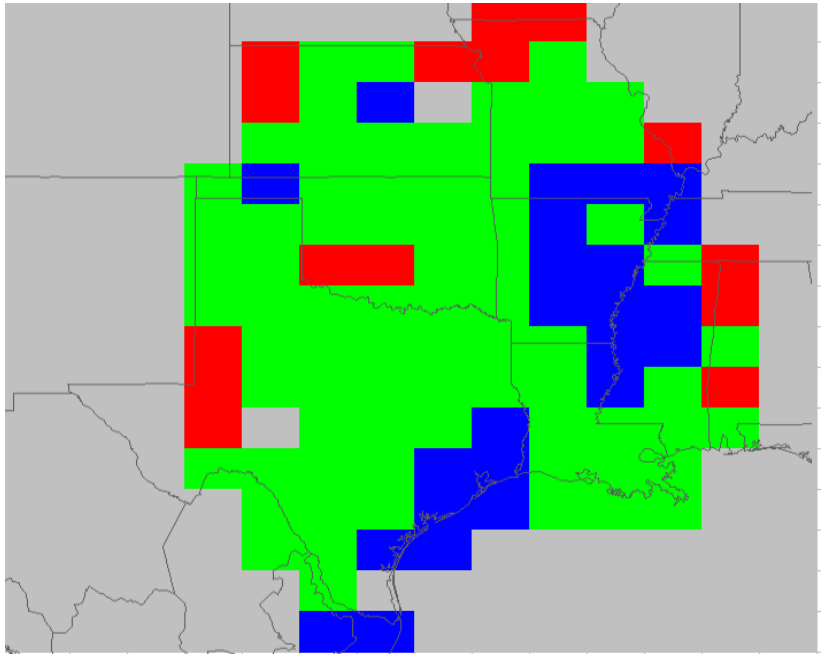
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

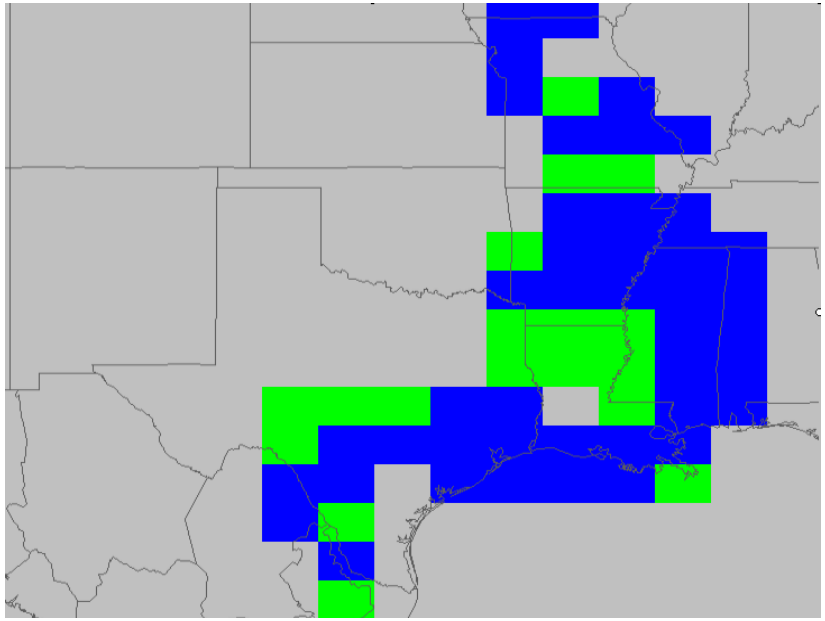
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

HWD 24 Hr Forecast

HEIDKE SKILL SCORE



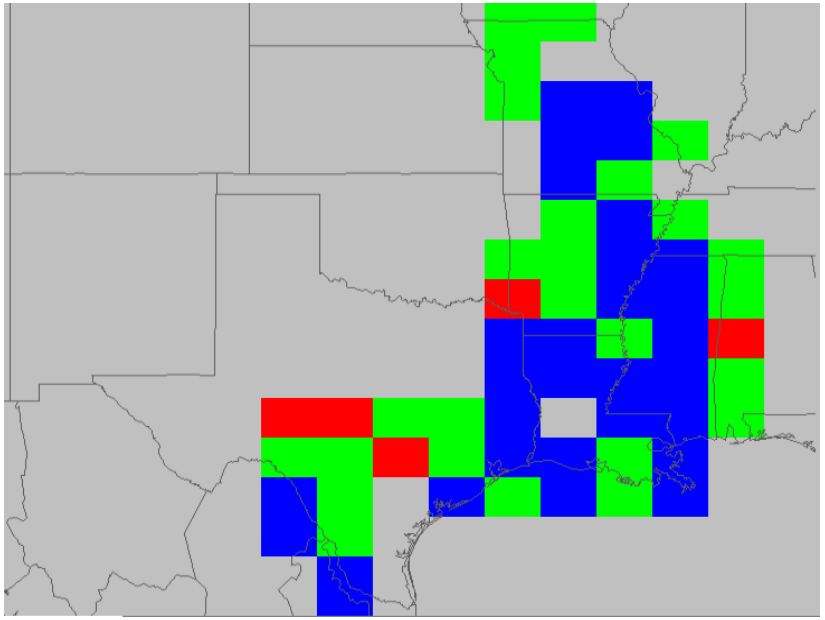
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

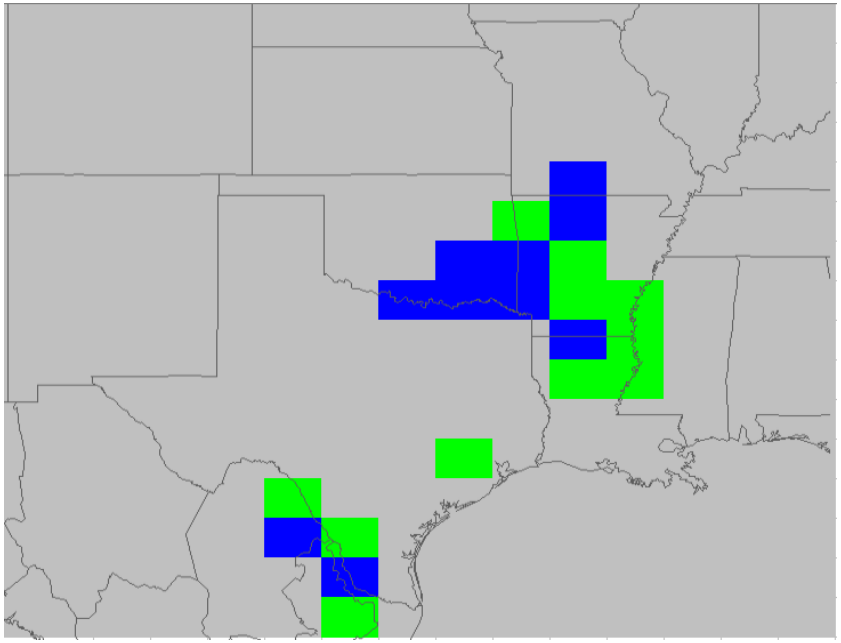
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

HWD 48 Hr Forecast

HEIDKE SKILL SCORE



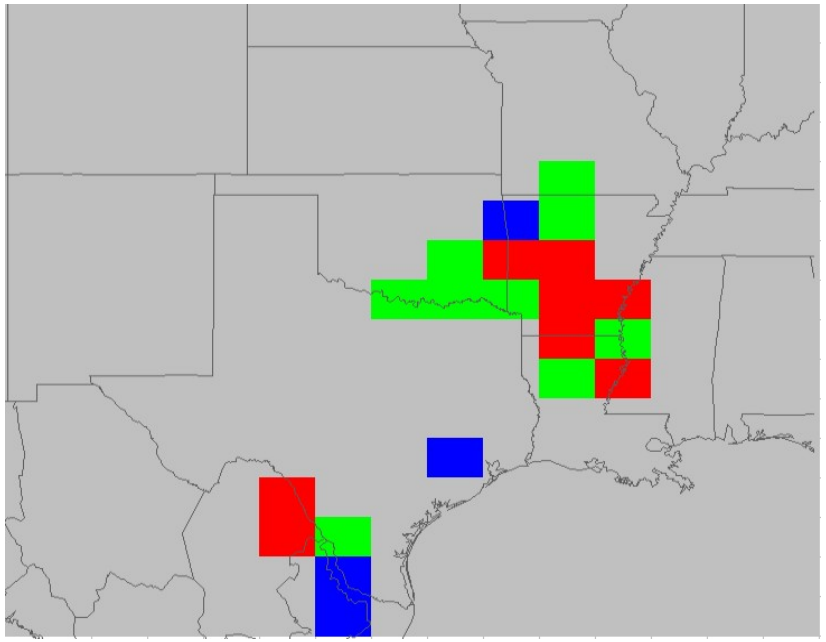
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

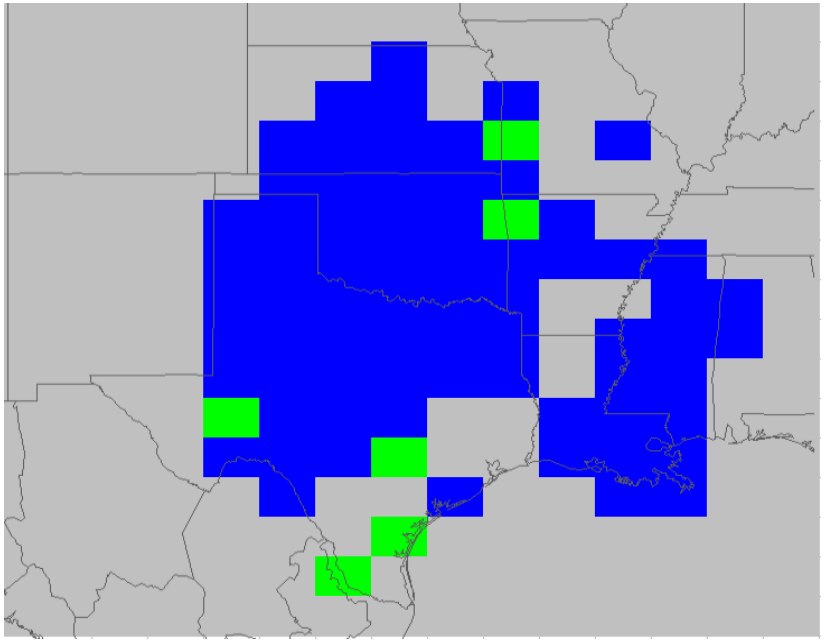
Insufficient Data

Thunderstorm Results

Period: 01-31 Oct 03

TSTMS 12 Hr Forecast

HEIDKE SKILL SCORE



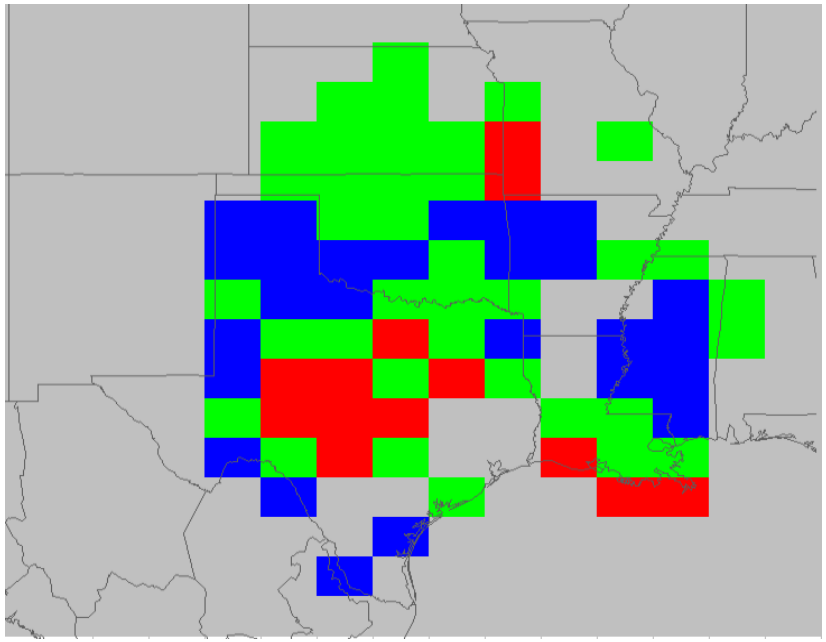
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

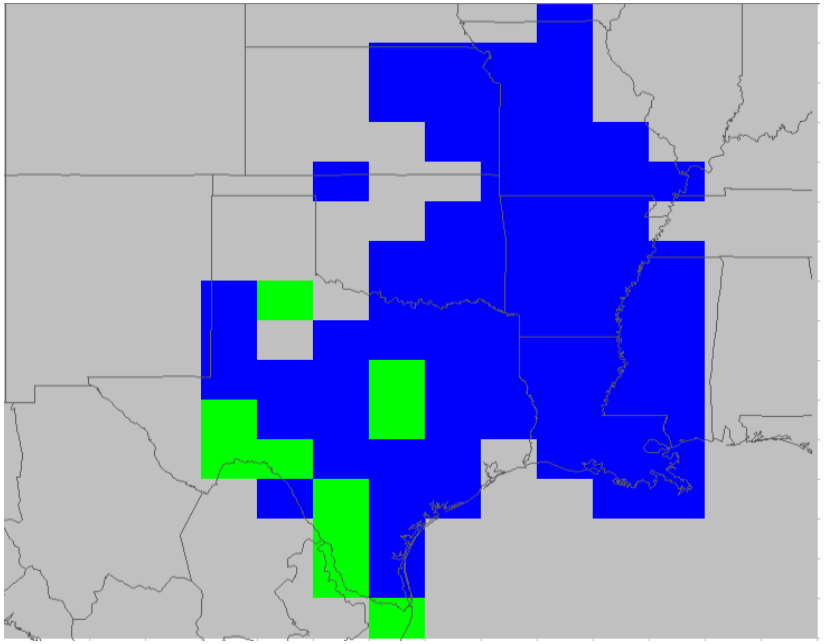
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

TSTMS 24 Hr Forecast

HEIDKE SKILL SCORE



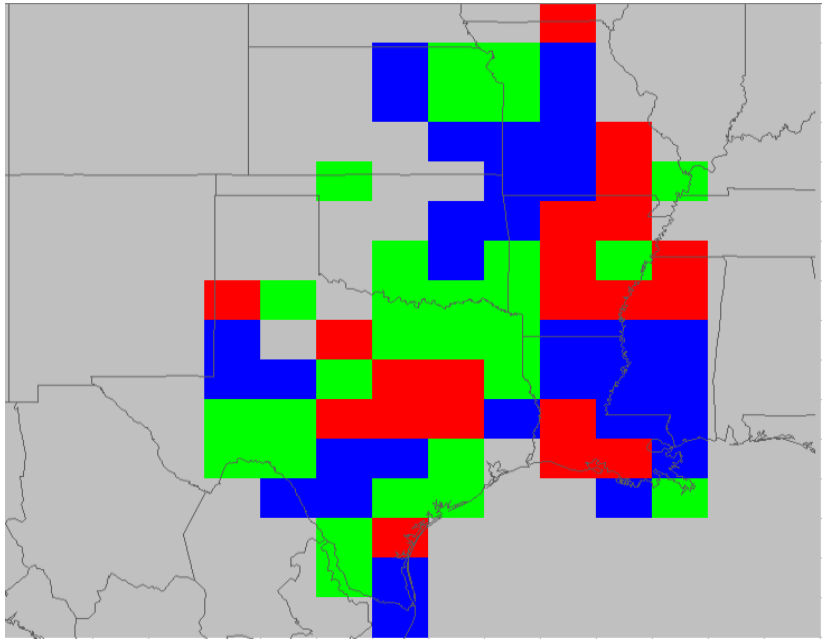
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

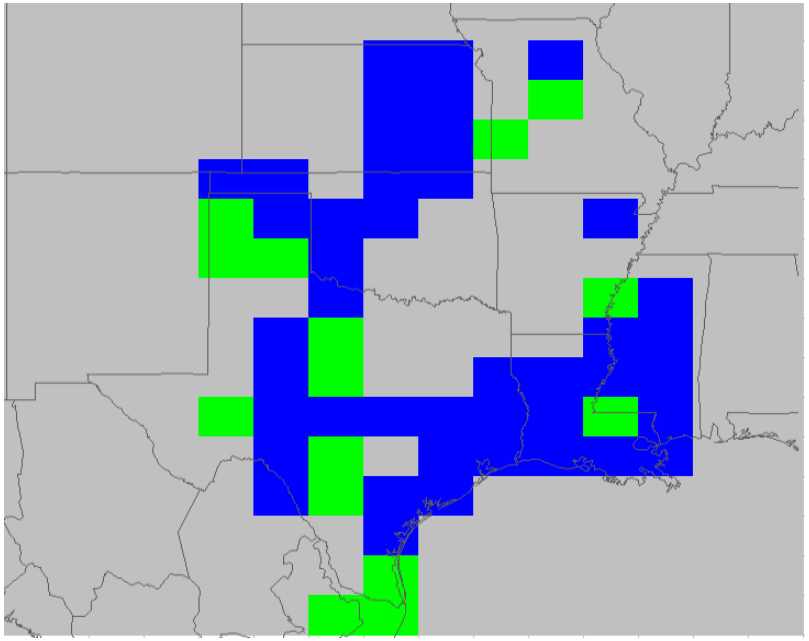
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

TSTMS 48 Hr Forecast

HEIDKE SKILL SCORE



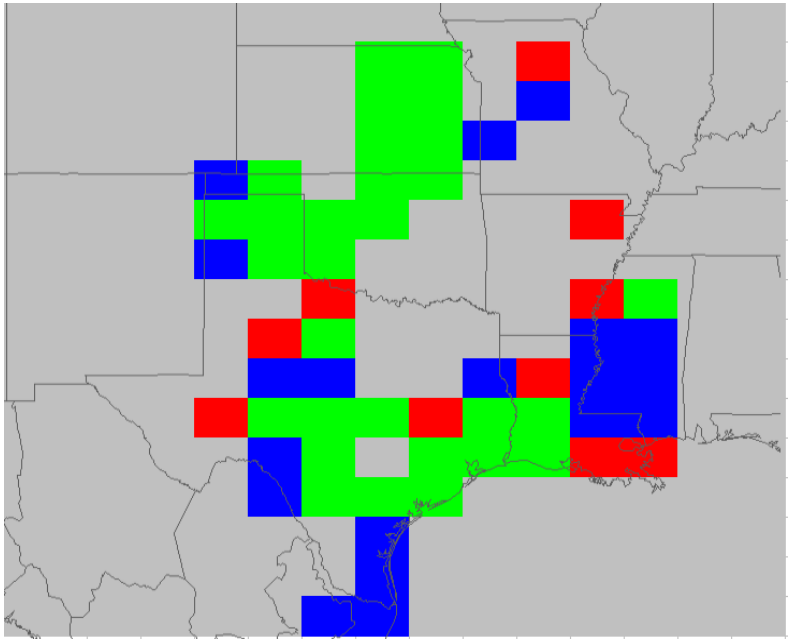
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

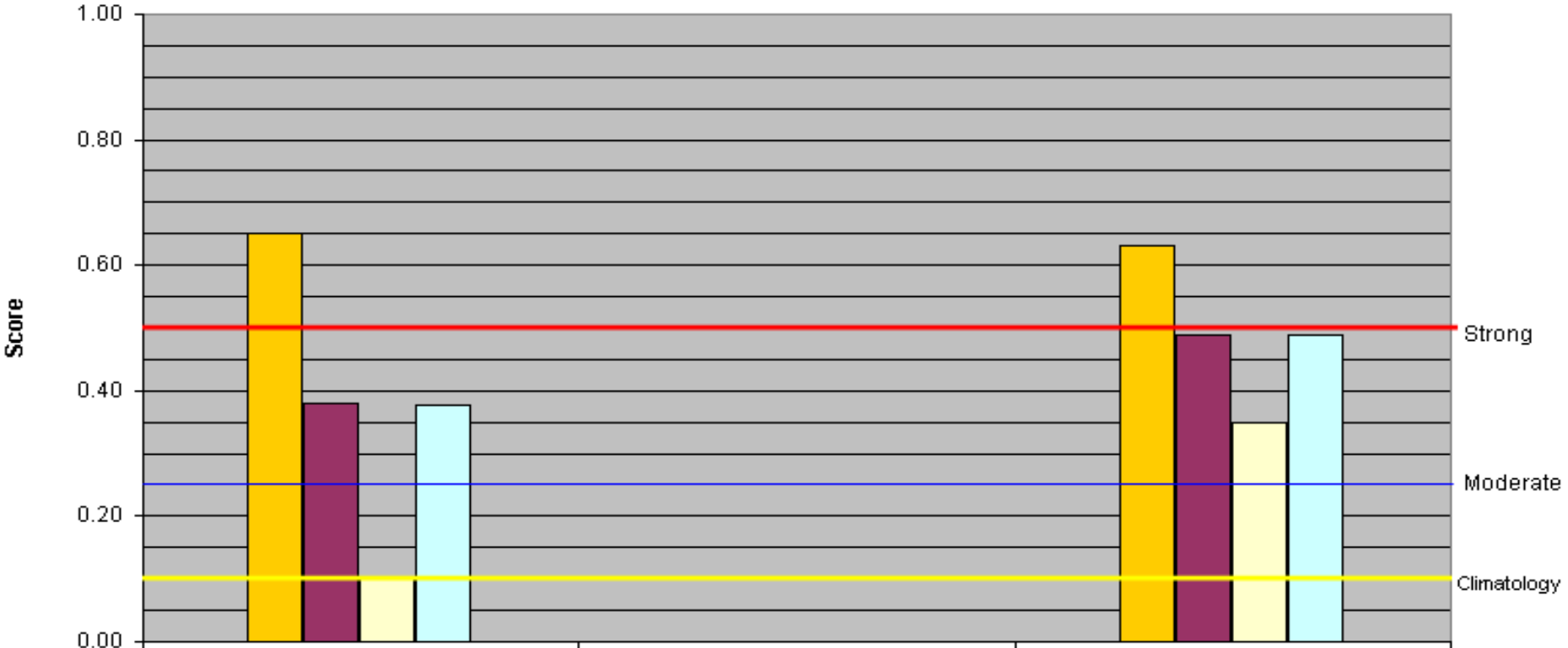
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

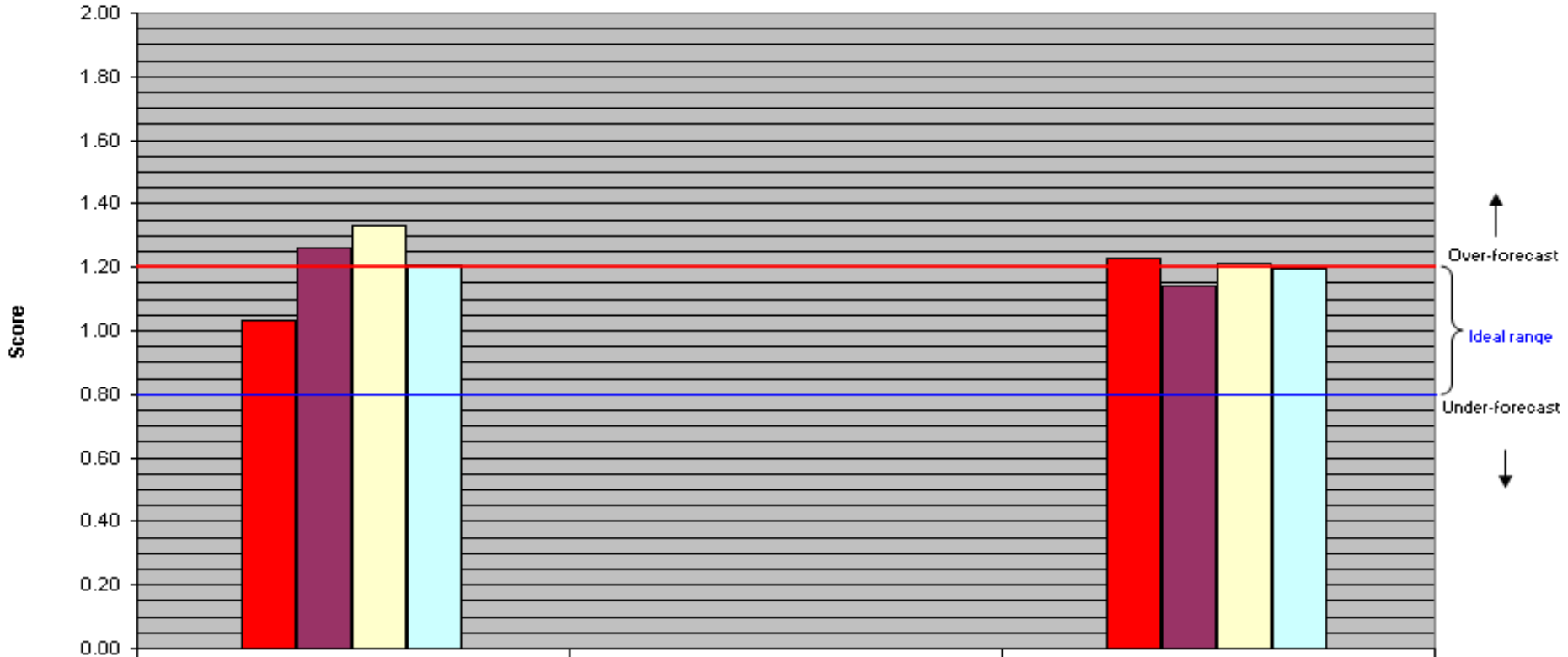
Numerical Output

Nov 03 HSS



	HWD		TSTMS
12 HR	0.65		0.63
24 HR	0.38		0.49
48 HR	0.10		0.35
AVG	0.38		0.49

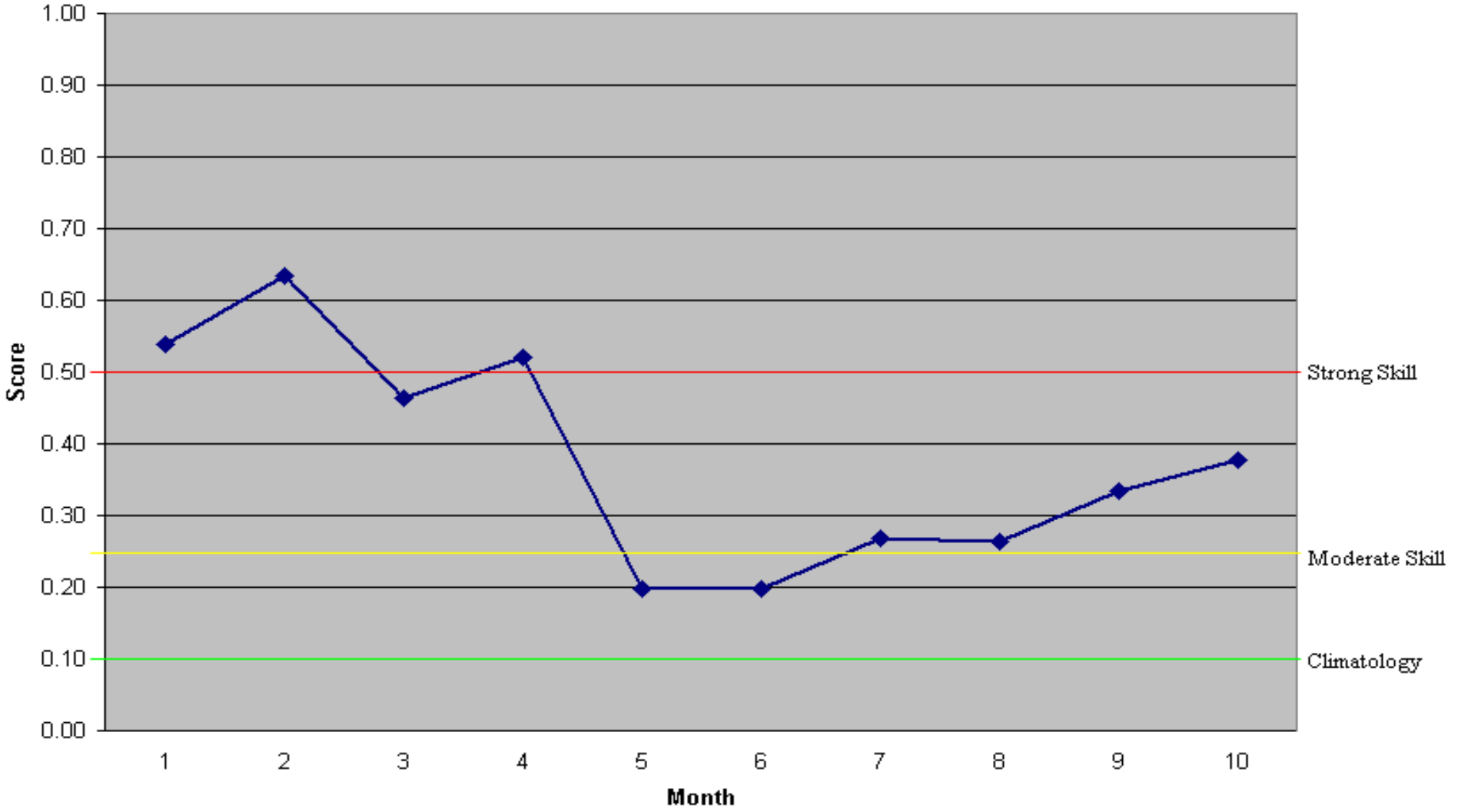
Nov 03 BIAS

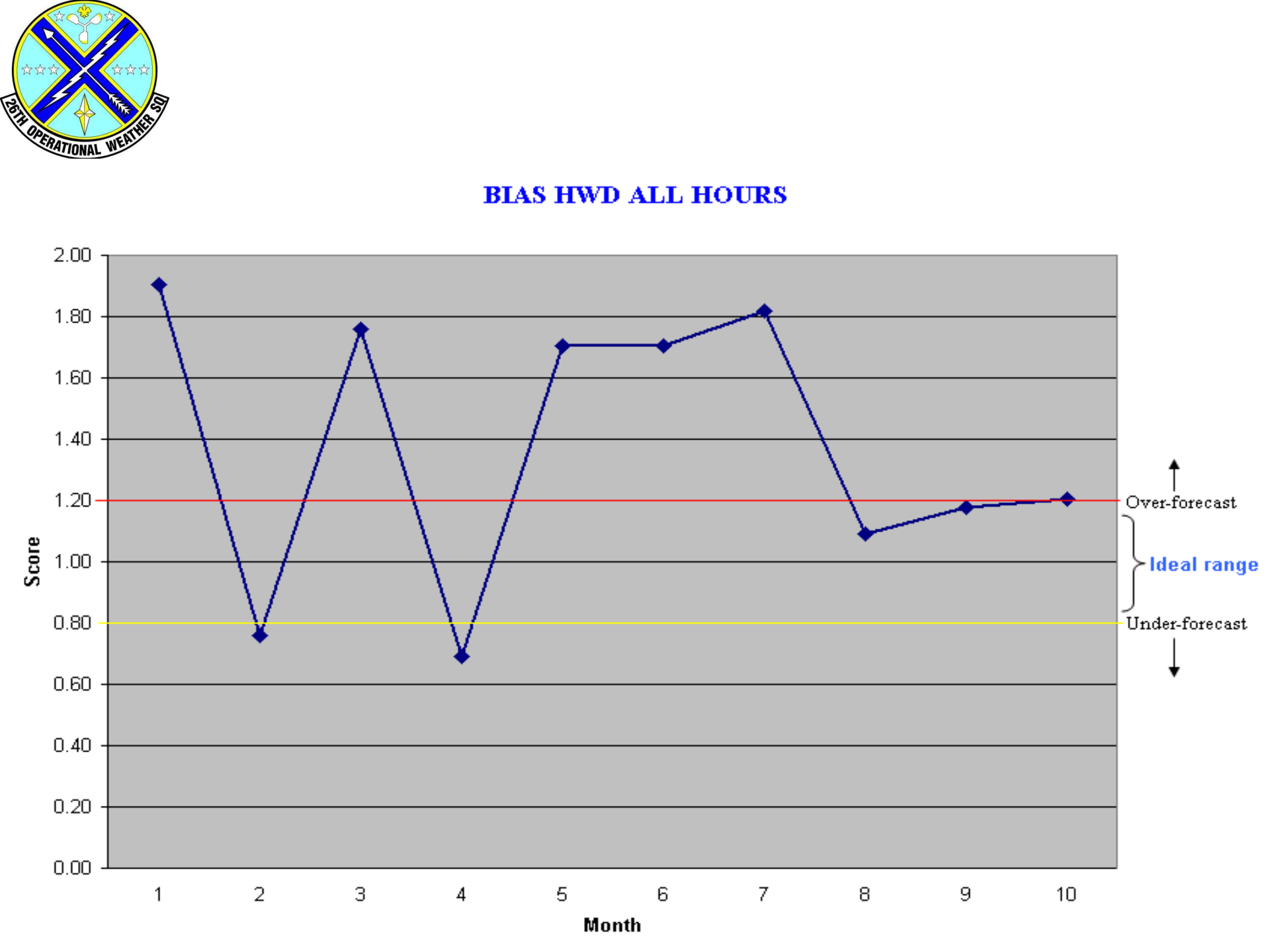


	HWD		TSTMS
12 HR	1.03		1.23
24 HR	1.26		1.14
48 HR	1.33		1.21
AVG	1.21		1.19

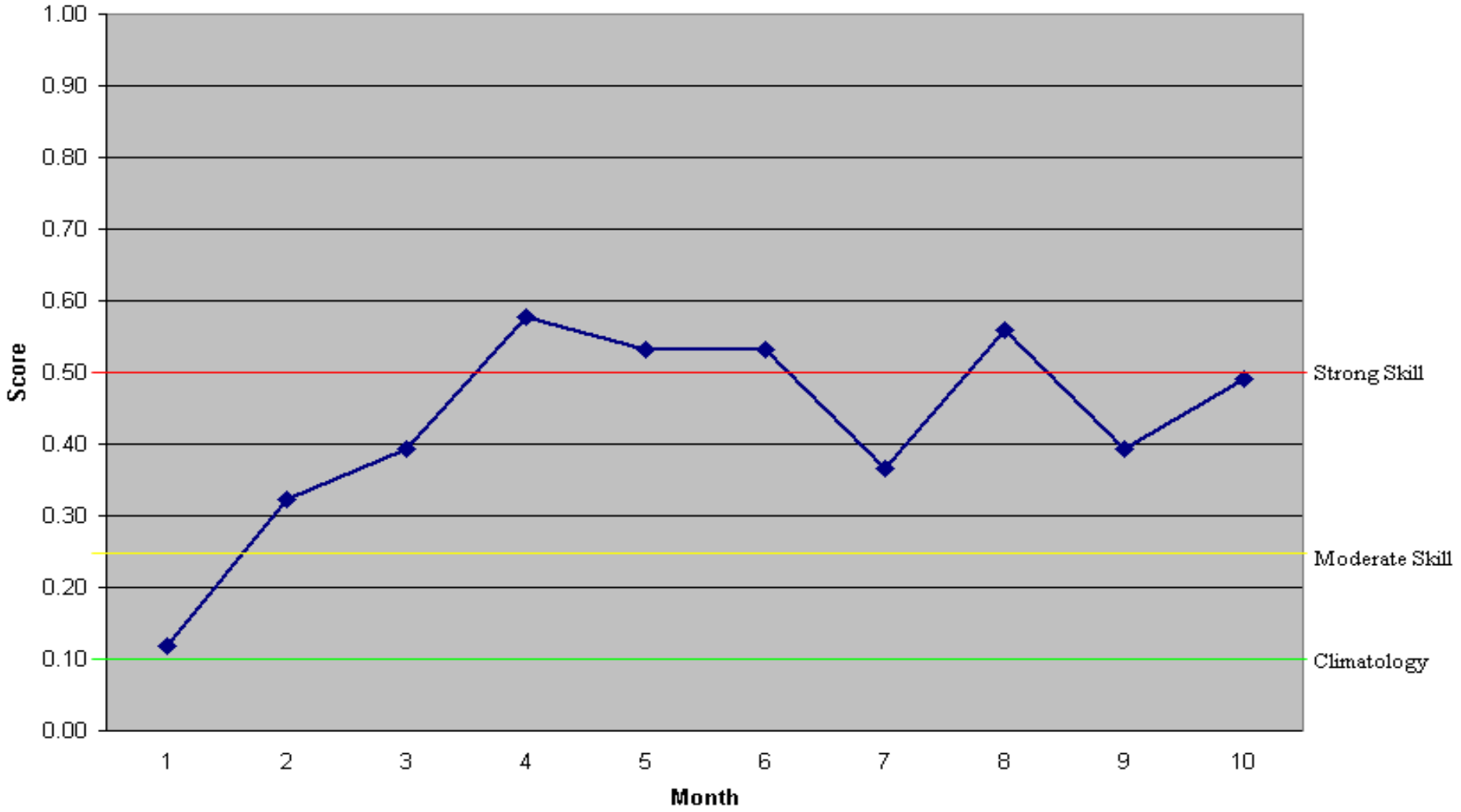
Graphics Trends

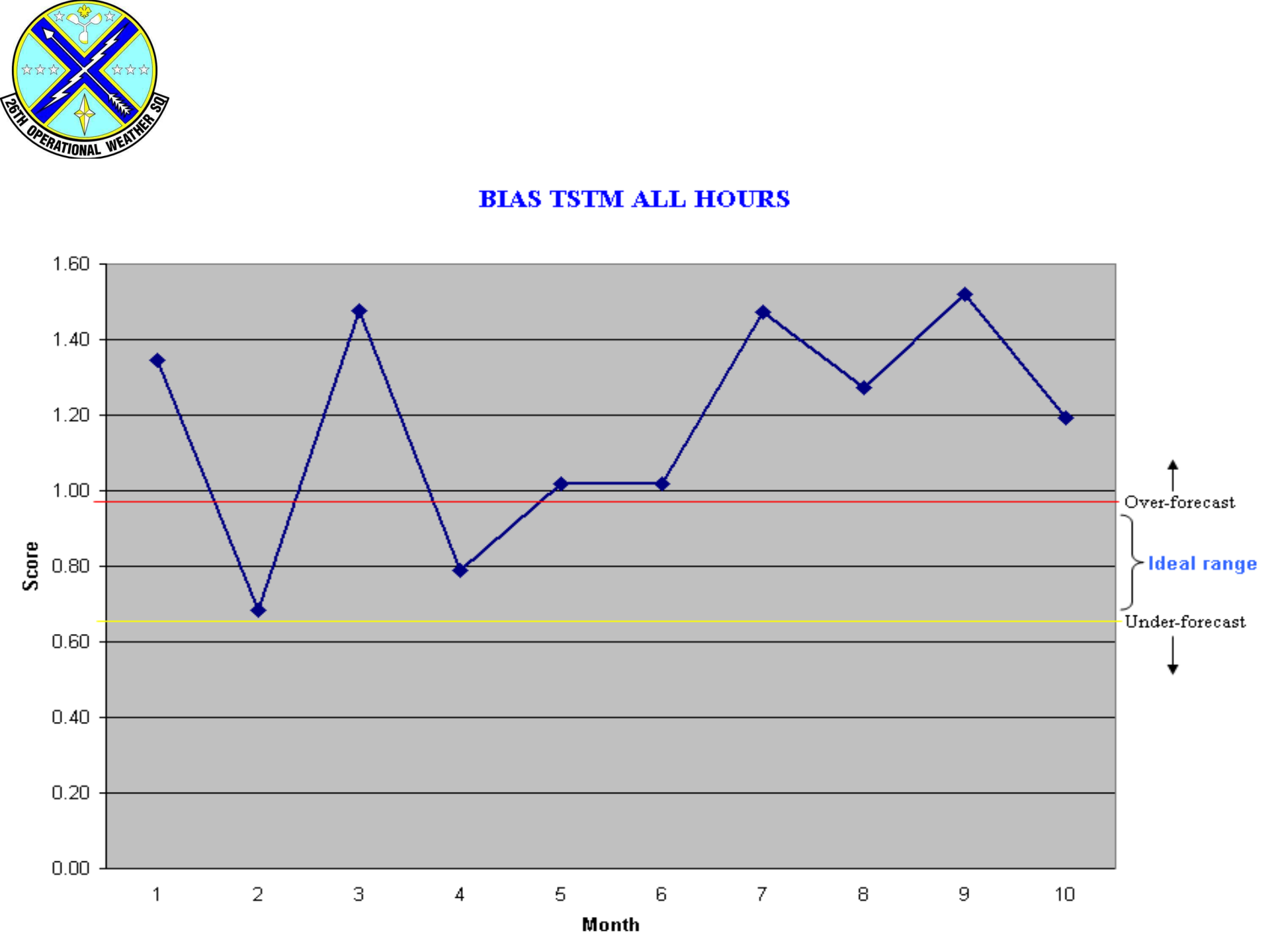
HSS HWD ALL HOURS




BIAS HWD ALL HOURS
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Score
1
2
3
4
5
6
7
8
9
10
Month
Over-forecast
Ideal range
Under-forecast

HSS TSTM ALL HOURS




BIAS TSTM ALL HOURS
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Score
1
2
3
4
5
6
7
8
9
10
Month
Over-forecast
Ideal range
Under-forecast

Review

- HWD – Moderate to Strong skill overall, opportunities increasing. New HWD scripts should help improve skill even more.

- TSTMS – Overall strong skill, bias toward over forecasting but we did improve slightly.